

ER PROGRAM DATA ASSESSMENT
SUMMARY REPORT FORM

Batch No. 8909S083 - E0734 Site Area 2 - Hillside
Laboratory TMA/Eberline No. of Samples/Matrix 6/Water
Reviewer Org. TechLaw, Inc.
Sample Numbers SW070006, SW069006, SW068006, SW067006, SW066006, SW031006

Data Assessment Summary

Gross $\alpha + \beta$ Analysis
by Gas Proportional Counters

Comments

1.	Holding Times	<u>V</u>	
2.	Initial Calibrations	<u>V</u>	<u>See Comment 2.</u>
3.	Continuing Calibrations	<u>V</u>	
4.	Blanks	<u>V</u>	
5.	Lab Replicates	<u>V</u>	
6.	Lab Control Samples	<u>R</u>	<u>See Action Item 1.</u>
7.	Size of Aliquot	<u>V</u>	<u>See Comment 3.</u>
8.	Self Absorption-Recovery Factors	<u>V</u>	<u>See Comment 3.</u>
9.	Sample Calculations	<u>V</u>	<u>See Comment 4.</u>
10.	Overall Assessment	<u>R</u>	<u>Data rejected.</u>

V = Data had no problems.

A = Data acceptable but qualified due to problems.

R = Data rejected.

X = Problems, but do not affect data.

Data Quality: Data contained in this batch were reviewed and found to be rejected. Refer to Action Items and Comment sections for discussion.

"REVIEWED FOR CLASSIFICATION" REVIEWED FOR CLASSIFICATION/UCNI
By R. B. Hoffman By George H. Setlock
Date 7-11-90 Date @ 6/27/90

Action Items: 1) Lab Control Samples: The alpha results for one of two Lab Control Samples (LCSs) fell outside 3σ . The alpha results were flagged as estimated JA. The beta results for both LCSs fell outside 3σ . The beta results were flagged R (rejected). Therefore, all data were flagged R.

Comments: 1) Lab Control Samples: One out of two LCS values for the alpha analysis fell outside the 3σ control limits; thus the data were flagged as estimated JA. Both values for the beta LCS fell outside 3σ control limits; thus all data for gross alpha and beta were flagged as rejected (R).

2) Initial Calibrations: The gross alpha standard reference material traceable to NIST Material AMZ.340 was diluted 11/30/83. The standard solution is at least 6 years old. The gross beta standard reference material traceable to NIST Material 4233-B was diluted 2/9/84. The standard solution is at least 6 years old.

3) Self Absorption Factors: The gross alpha self-absorption curve for Scintillation Alpha Counters was exceeded. E-factors, which are efficiency factors, range from 1.55 to 3.88 for the alpha curve. The E-factors for SW069006 and SW067006 were 5.18 due to heavy dissolved solids in the sample matrix. The E-factors used for calculation of the activities were obtained by extrapolation outside the self-absorption curve range.

4) Sample Calculations: A transcription error was found in the beta calculation for sample SW031006. The reported value was 7.5 pCi/L, the corrected value was 5.5 pCi/L.

Note: Data Summary Tables are attached.

David W. Moody
Reviewer Signature

3/13/90
Date

RADIOCHEMICAL ANALYSIS ANALYTICAL RESULTS (PCIL)

TABLE #: 8909S083 - E0734

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SITE NAME: Area 2 - Hillside

Sample Location	SW070006	SW069006	SW069006	SW067006	SW066006	SW031006	Reagent Blank	Reagent Blank
Sample Number	9/26/89	9/26/89	9/26/89	9/26/89	9/26/89	9/26/89		
Matrix	Water	Water	Water	Water	Water	Water	Water	Water
DL	PCIL	DL	DL	DL	DL	DL		
Parameter	Val. +/- DQ	Val. +/- DQ	Val. +/- DQ	Val. +/- DQ	Val. +/- DQ	Val. +/- DQ	Val. +/-	Val. +/-
Gross Alpha	2 5 1 R 4 1 R 9 1 R 9 1 R 6 1 R 6 1 R 0.1 U 0.5 0.1 U 0.3							
Gross Beta	4 12 3 R 13 3 R 27 3 R 19 2 R 9 2 R 6 2 R 1 U 2 2 U 2							
Total Strontium	1							
Total Cesium	1							
Radium 228	1							
Tritium	400							
Uranium 234 & 233	0.6							
Uranium 235	0.6							
Uranium 238	0.6							
Plutonium 239 & 240	0.01							
Americium 241 & 242	0.01							
Radium 226	0.05							
Gamma scan								
Other Isotopes								

- U Indicates the parameter was not detected above the Instrument Quantization Limit
- J Quantitation is approximate due to limitations identified during the quality control review
- Value is rejected due to other contractual criteria examined during the quality control review
- Value is rejected due to blank contamination identified during the quality control review
- DL Detection Limit in PicoCuries per Liter (pCi/L)

DQ Data Qualifier
V Valid
A Acceptable with qualifications
R Rejected

e0734/LTK40

EG&G ER Program
Rocky Flats Plant

**Radiochemical Data Completeness
Checklist for Radiometric and Gross α & β Analyses
of Soil and Water by Gas Proportional Counters**

- I. Yes Case Narrative
 Yes Abnormalities explained
 No Matrix Problems explained
 Yes Instrument problems explained
 Yes Improper collection, storage, preservation, container explained
 Yes Hold times met, explained if not met
- II. Yes Initial Calibration Data Package
 Yes Detector ID
 Yes Analyst initials
 Yes Date, Time calibrated
 Yes Current Batch Date
 Yes Name, Activities, Dates of Certification of all NBS standards
 Yes Voltage settings, gain settings, or plot of voltage versus std CPMs
 Yes Plots of net std CPMs versus gain settings at voltage giving highest
 net CPM to gain ratio (crosstalk plot)
 Yes Last service or repair date for detector
- III. Yes Continuing Calibration Data Package:
 Yes Detector ID
 Yes Analyst initials
 Yes Date, Time of calibration check
 Yes Name, Activities, Dates of Certification of check standards
 Yes CPMs observed, count duration, mean counts
 No Control chart means (copy of control charts)
 Yes Background CPMs observed, results of chi square test
 No Mean of Last 10 background checks and allowable limits
 N/A Raw data from counter to verify crosstalk values
- IV. Yes Blanks Data Package
 Yes ID number of each detector the blank is counted in
 Yes Date, Times of counts
 Yes Samples and IDs in the set with the blank
 Yes Type of blank used
 Yes Detection level reported
- V. Yes Lab Replicates Data Package
 Yes Detector ID
 Yes Analyst Initials
 Yes Date, Time Analyzed
 Yes Value obtained for sample, replicates, mean values
 Yes Count Durations of samples and backgrounds
 Yes Statistical Analysis of Range, Control Limits

- VI. Yes Lab Quality Control Samples Data Package
 Yes Sample ID, Detector ID
 Yes Analyst initials
 Yes Values obtained, true value of sample
 Yes Statistical Analysis of results
 Yes Name, Activities, Certification date of QC samples
- VII. Yes Self-Absorption, Recovery Factors Data Package
 No Linear Equation for calibration curve, coefficients
 No Copy of self-absorption curve
 Yes Raw Data from counter to determine coefficients
- VIII. Yes Minimum Detectable Activity
 Yes Background measurements
 Yes Detector ID
 Yes Date, Time of count, count duration
 Yes Mean background CPM over long period
 Yes Calculated MDA for isotope of interest
- IX. Yes Size of Aliquot in Gross α & β Determination Data Package
 Yes Sample ID
 Yes Date, Time analyzed
 Yes Efficiency factor used
- X. Yes Sample Data Package
 Yes Printed report of results for sample, reruns
 Yes Computer calculations
 Yes Raw Data from counter, copies of notebook pages